



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

one of the publications of the Geological and Natural History Survey of Canada, is a publication of much promise. It is doubtless the forerunner of a flora of Canada, which has long been needed. It includes 907 species, although extending no further than the end of the Polypetalæ.—The Catalogue of the Plants of Worcester county, Mass., by Professor Joseph Jackson, published by the Worcester Natural History Society, is creditable both to the author and the society which furnished the means for its publication. It contains 812 species and well-marked varieties, distributed among 387 genera. Why do not more local societies undertake the publication of such lists?—From the Bulletins of the U. S. Fish Commission we have a list of marsh and aquatic plants of the U. S., many of which are suitable for carp ponds, by L. F. Ward. It includes flowering plants only.

ENTOMOLOGY.¹

THE GENUS *COLIAS*.—As "Contributions from the Northern Transcontinental Survey," Dr. H. A. Hagen has sent us from the Proceedings of the Boston Society of Natural History, Vol. XXII, pp. 150-178, an interesting paper containing the results of his studies on the genus *Colias*. We have read it over with a good deal of interest and care, and while it upsets much of the descriptive work which Mr. W. H. Edwards has done, we feel that Dr. Hagen is in almost every case justified by the facts and by the recognized variability in the genus and in Lepidoptera generally. Dr. Hagen's method has been, first, to familiarize himself with the publications on the subject both here and abroad, and then to critically study large sets of specimens wherever such were available. He reduces the number of species (exclusive of *eurydice* and *cæsonia*) to nine, as follows:

1. *Colias chrysotheme* = *keewaydin*, with seasonal forms *ariadne* and *eurytheme*.
2. *C. philodice*, with seasonal form mimicking *ariadne*, and with north-western forms *eriphyle* and *chrysomelas*.
("Nos. 1 and 2 are so nearly related to each other that obviously reliable differences are still a want," p. 152.)
3. *C. interior*, synonyms *edwardsii* with *emelia* and *astræa*, *alexandra*, *scudderii*, *occidentalis*, *christina*, var. *harfordii* with female *barbara*, var. *laurentina*. (*C. pelidne* Boisd., is united with *C. palæno*, unless the type should prove its identity with *C. interior*.)
4. *C. palæno* with var. *pelidne* Boisd., Staud., and *chippewa*.
5. *C. meadii*.
6. *C. behrii*.
7. *C. nastes*.
8. *C. hecla*.
9. *C. boothii*.

Nos. 5 to 9 are simply enumerated, as little or no material was

¹ This department is edited by PROF. C. V. RILEY, Washington, D. C., to whom communications, books for notice, etc., should be sent.

at hand, and it is safe to assume that species founded as they have been, on limited material, will not stand, but will all come to be looked upon as extreme forms of *chrysotheme*. However this may be, but four species that are at all well known, exclusive of *eurydice* and *cæsonia*, are recognized by Dr. Hagen.

A critical study of his paper renders it doubtful whether the context warrants even these four. *C. harfordii* and *barbara* are made (on p. 165) synonymous with what Wm. H. Edwards figured as the male of *keewaydin*, so that *interior*, of which they are also made synonyms, should perhaps be joined to *chrysotheme*. *Philodice* and *anthyale* are made synonymous, while Mr. W. H. Edwards also acknowledges in his later writings the identity of *palæno* and *anthyale* with *philodice*, and of *ariadne* and *keewaydin* with *eurytheme*. Thus the logic of Dr. Hagen's showing is, that of the common and wide-spread forms we have but two species viz., *chrysotheme* and *philodice*. The fact that Moeschler and Keferstein unite *interior* with *philodice* also confirms the invalidity of *interior* and of all the varieties that Hagen associates with it.

Now we have long held the opinion that *eurytheme* and *philodice*, as they occur in the Mississippi valley, could not satisfactorily be separated by any permanent specific characters, and our breeding experience tends to confirm this view (though the notes have never been published). Hence as Hagen argues that *eurytheme* and *chrysotheme* are one, by parity of reasoning the conclusion is inevitable that our commoner North American forms of *Colias* are all reducible to three, viz., *eurydice*, *cæsonia* and *chrysotheme* with its thirty or more races and varieties. This would seem to mean that the more fully abundant material from all sections is studied, the more hopelessly confused our specific divisions become, and this is just what it does mean, as we insisted in our recent remarks (p. 975) on the discussion of a similar question between Messrs. Hagen and Edwards. Some years ago in private correspondence with the latter, we insisted that half the so-called species, including some of his own, ought to be rejected, and that we recognized but two good species at St. Louis, viz., *cæsonia* and *eurytheme*, not being satisfied at that time that this last was identical with *chrysotheme*. Some of the species have been made on ridiculously trivial grounds, while others deserve the designation according to the ordinary conceptions of specific value among lepidopterists. A study of the genitalia may serve to separate two or three of the well-founded species and the rest should fall in as ordinary varieties, geographical varieties and races, and seasonal forms, the names proposed as specific being retained for convenience, very much as Mr. Edwards has so admirably done with the forms of *Pieris napi*.

The genus may be looked upon as a plastic one in which the species are in process of forming, but in most cases have not be-

come well differentiated. The pamphlet quotes in a postscript the characters which Mr. Keferstein has found variable and therefore not of specific value in the genus. These include the discal spots on upper side of primaries and under side of secondaries, the submarginal series of spots on under side of primaries and the "mealy spot." If we add coloration within limits, and form of wing, as we are justified in doing, we must evidently depend on the more constant though less noticeable structure of the body.—C. V. R.

HABITS OF BLAPS AND EMBAPHION.—Among the more recent introductions from the Old World are two species of the Tenebrionid genus *Blaps*.¹ Both species occur in Europe abundantly in stables, warehouses, dirty cellars, etc., and are so rarely met with away from such buildings that they may properly be included among the numerous "domestic" insects to which the family Tenebrionidæ furnishes a not inconsiderable contingent. The North American representatives of *Blaps* are the numerous species of *Eleodes* which form the most conspicuous feature of the Coleopterous fauna of the Central and Pacific regions of our continent. Some of the species occur in an incredible number of individuals but I am not aware that any species has thus far any tendency to acquire habits similar to those of the two *Blaps* mentioned above. Mr. Lawrence Bruner informs me, however, that another large Tenebrionid, *Embaphion muricatum* Say, is at present met with in large numbers in cellars in Nebraska, and that it is much more frequent in such places than outdoors. It would thus appear that this *Embaphion* flourishes more in the vicinity of human habitations than in its native haunts, and this fact is the more interesting that the species belongs to the small number of native American species which are habitually met with in our houses, the large majority of such domestic Coleoptera being either European forms or at least cosmopolitan species of uncertain origin.—E. A. Schwarz, Washington, D. C.

LARVAL HABITS OF THE DIPTEROUS FAMILY DEXIDÆ.—Dr. Fr. Brauer has recently made some interesting observations on the entomography of *Hirmoneura obscura* (Sitzungsber. d. Kais. Akad. d. Wiss. LXXXVIII, pp. 865-75) which have incidentally led to the discovery of two other Dipterous parasites of the *Rhizotrogus* larva and belonging to the family Dexidæ, of which little has thus far been known. A small parasitic larva produced *Dexia rustica* Fall., while another larger one was found within the abdomen of the *Rhizotrogus* larva adjacent to the colon of the intestinal canal. It was encased in a membranous sac closely resembling the colon and which, tapering posteriorly, ended in a some-

¹The specimens I saw and which were said to be found in Virginia were all *Blaps fatidica*. Of the second species, *B. mortisaga*, I have not yet seen undoubted American specimens.

what bent, chitinous funnel, open at the end. This opening probably connects with one of the tracheæ of the beetle larva. The Dipterous larva lies in this sac with its abdomen reaching within the funnel. Puparia of the parasite were found in the ground and produced in July the perfect fly, which proved to be *Phorostoma latum* Egger. Dr. Brauer describes and illustrates the anatomical details of this larva.

Of our North American Dexidæ the habits of only one species have been recorded thus far, viz., the parasite on *Diabrotica vittata*, described by Dr. Henry Shimer (AM. NAT., v, p. 219) as *Melanophora diabroticæ*, a species which is doubtfully referred in Osten-Sacken's catalogue to the genus *Melanophora* Meigen, as the figure and description do not permit of positive determination.

NORTHERN LOCALITIES FOR SOUTHERN BUTTERFLIES.—In the November number of the NATURALIST, Mr. Smith, of Natick, Mass., reports Mr. Scudder as saying that the most northern locality in which *Junonia cœnia* has been found is the southern extremity of Maine, near Portsmouth, N. H. One example of this species was captured last summer by a gentleman from Bangor, in woods about four miles south of Orono. It was as large and nice as the average of a large lot captured in Florida. *Chionobas jutta* has also been taken for several years in a bog in the same vicinity. I think this is the first time it has been reported within the limits of the United States.—Mrs. C. H. Fernald, Orono, Me.

INSECT-LIFE AMONG SPIDER EGGS.—At the annual meeting of the San Diego, Cal., Natural History Society, a letter from Miss Rosa Smith was read referring to the discovery of the mature male of *Zilla rosa*, a beautifully colored California spider, and the insect life observed in the egg cocoons of *Epeira atrata*, the species having been determined by Dr. H. McCook, of Philadelphia. They are (1) a small ant, probably referable to *Solenopsis* and doubtless feeding on the spider eggs; (2) larvæ of a Dermestid beetle (*Attagenus pellio*?), apparently feeding on the refuse matter in the nest; (3) a true parasite of the *Epeira* eggs belonging to *Pezomachus*, having a secondary parasite in an undetermined Chalcid fly, which in its turn proved to be infested by a still smaller species of the same family.

ALETIA XYLINA IN THE NORTH.—Yesterday in my little garden I took a wonderfully fresh example of *Aletia argillacea*, and two years ago, when in Toronto, I found the insect extremely common on fences, &c., in the streets of the city. I found one specimen on the wall of a garden, with its wings still damp and undeveloped, having just emerged from the chrysalis. I looked all round the garden but found no Malvaceous plants except a large bush of *Abutilon* and the little wild mallow, *Malva rotundifolia*.—Hy. Edwards, New York, Oct. 23, 1883.

AQUATIC SPIDERS.—Waiting beside a mill-pond on a mild, balmy day last March, a slight wind prevailing but not enough to ruffle the surface of the water, I noticed a spider let himself down into the water from one of the trees bordering upon the pond, and as soon as it reached the water the web or strand was severed with such a length attached to his person as to act as a sail and serve to assist his propulsion, with the favoring breeze, to the other side.

Numerous spiders followed the same procedure with webs of varying lengths from three to eight feet. I supposed this was their method of crossing from side to side in search of more abundant food.

I may perhaps be only repeating what was before well-known, but as it was new to me I give it for what it is worth.—*George C. Henning, Washington, D. C., Nov. 17th, 1883.*

THE PHYLLOXERA IN SANDY SOIL.—The *London Times*, in a recent issue, contains a dispatch which gives the condition of the French grape crop, as follows:

"Only twelve of the southern departments seem satisfied with their vintage. The yield in general is expected to be even below the average of late years. Burgundy and Champagne report a yield extremely deficient, both in quantity and quality; while Macon counts upon a better crop than had been predicted, though of somewhat poor quality. In Charente the quality is also poor."

The same dispatch, in summing up the observations of Lalande, mayor of Bordeaux, on the conditions of the vines in the Phylloxera-infested sections of the country, gives a most favorable account of the use of American stocks, and shows that even the French vines at Aigues-Mortes are flourishing in the sandy soils, thus emphasizing the fact of the impotence of the Phylloxera in such sandy soils.

OSAGE ORANGE VS. MULBERRY FOR THE SILKWORM.—There is a strong disposition on the part of those who look for making money by the propagation and sale of mulberry trees, to under-rate the use of osage orange as silkworm food. We have thoroughly demonstrated, by the most careful tests, on several occasions, that when *Maclura aurantiaca* is properly used for this purpose, the resulting silk loses nothing in quantity or quality, and we have now a strain of *Serica mori* that has been fed upon the plant for twelve consecutive years without deterioration. There has been, perhaps, a slight loss of color which, if anything, must be looked upon as an advantage. It is more than likely, however, that the different races will differ in their adaptability to the *Maclura*, and that for the first year the sudden transition to *Maclura* from *Morus*, upon which the worms have been fed for centuries, may result in some depreciation. Mr. Virion des Lau-

riers, at the silk farm at Genito, has completed some experiments on the relative value of the two plants, which he details in the opening number of the *Silk-Grower's Guide and Manufacturer's Gazette*. Four varieties of worms were reared. The race known as the "Var" was fed throughout on mulberry leaves. The "Pyrenean" and "Cevennes" worms were fed throughout on leaves and branches of osage orange, while the "Milanese" worms were fed on Maclura up to the second molt and then changed to mulberry leaves. At the close examples of each variety of cocoons were sent to the secretary of the Silk Board at Lyons, and appraised by him. The Maclura-fed cocoons were rated at 85 c. per pound, those raised partly on osage and partly on mulberry at 95 c. per pound, and those fed entirely on mulberry at \$1.11 per pound.

This, Mr. des Lauriers thinks, seems to show that the difference between Maclura and *Morus* as silkworm food is some "twenty-five to thirty per cent in favor of the latter, while it is evident that the leaf of the osage orange can be used with some advantage during the *first two* ages of the worms, thus allowing the mulberry tree to grow more leafy for feeding during the last three ages." The experiment, although interesting, is not conclusive, from the simple fact that different races were used in the different tests and not the same races, so that the result may have been due, to a certain extent, to race and not to food.

THE CHINCH-BUG IN NEW YORK STATE.—Professor J. A. Lintner, State entomologist of New York, has been interviewed at length in the *Albany Argus* of Oct. 10th on the subject of Chinch-bug injuries in Northern New York. It appears that its destructive work was first discovered in June, 1882, by Mr. H. C. King, of Hammond, St. Lawrence county, and that the destruction has increased the present year though confined to grasses.

In this interview, in a communication to *Science* of Oct. 19th, and in a circular issued from the office of the State entomologist, Oct. 18th, Mr. Lintner draws attention to the rarity of the chinch-bug in the State of New York heretofore; to its persistent injury in St. Lawrence county notwithstanding the past wet season, and finds in these facts reason for the greatest alarm on the supposition that this manifestation is due to an invasion, and that the insect shows exceptional power of withstanding constant rains, which are well known to prove disastrous to it in the Mississippi valley.

We have not been able to read over these accounts without feeling that an undue amount of alarm is felt. Since the chinch-bug was known to occur in New York at the time of Harris and Fitch, and is found further north both on the Atlantic seaboard and in the Northwest, we see no reason for considering that St.

Lawrence county has been invaded from other parts, but should rather attribute the recent injury to undue increase of a species always there, albeit not generally noticed and heretofore unrecorded. This increase may in fact be due to the excessively dry weather that characterized 1880 and 1881 and previous years, the reacting wet weather not having yet produced an injurious effect upon it. In this view of the matter, which seems to be most reasonable, the outlook is rather encouraging than alarming, and we fully expect to see this view corroborated by subsequent events, *i. e.*, the pest will sink back to its state of harmlessness next year and probably perish in immense numbers during the coming winter. We would not, however, by any means have the farmers relent from the measures recommended by Mr. Lintner in the circular already alluded to, though he can scarcely expect them to carry out his advice without some obligatory law or some compensation from the State.—*C. V. R., in Scientific American.*

BACTERIAL DISEASE OF THE IMPORTED CABBAGE-WORM.—Professor S. A. Forbes, State entomologist of Illinois, has found the larvæ of *Pieris rapæ* seriously affected, around Normal, Ills., by a disease which in a few hours causes them to decay and reduces them to a black almost fluid condition, dissolving at the touch. He finds the disease due to immense numbers of Bacteria, excessively minute, and that they can be cultivated artificially in beef broth and thus introduced and propagated among healthy insects.

This black rot of the cabbage-worm has been known to us for some years and is quite widespread. We have made reference to it on page 70 of our Bulletin on the Cotton-worm in connection with some experiments with yeast ferment, in the following words: "An incident connected with these experiments which I made is, however, well worthy of being mentioned, because it shows how very easily single experiments may lead to false hopes and conclusions. A certain proportion of the last named larvæ [*P. rapæ*—the proportion differing in the lots treated—perished before, or while transforming to the chrysalis state. They became flaccid and discolored, and after death were little more than a bag of black putrescent liquid. I should have at once concluded that the yeast remedy was a success had I not experienced the very same kind of mortality in previous rearing of this larva, and had I not upon returning to the field from which the larvæ in question were obtained, found a large proportion similarly dying there."—*C. V. R., in Scientific American.*

ENTOMOLOGICAL NOTES.—In a notice of the papers by Mr. E. Meyrick on the Micro-lepidoptera of Australia, New Zealand and Tasmania, Professor C. H. Fernald states that *Carpocapsa pomonella* has been introduced to those regions along with the apple.

—Lord Walsingham writes us: "Noticing your mention of *Helia americalis* as a myrmicophilous Lepidopteron (AM. NAT., Oct., 1883, p. 1070), I would remind you of *Myrmicocela ochraceella* Tgstr., which is found also in ants' nests. It is allied to the true Tineæ.

ZOÖLOGY.

OWEN ON THE ASPECTS OF THE BODY IN VERTEBRATES AND INVERTEBRATES.¹—The pineal and pituitary bodies, with the infundibulum, constituting what our author styles the conario-hypophyseal tract, have been the theme of much discussion among naturalists. Some have seen in the pituitary, a gland secreting the intraventricular fluids of the brain, while others have believed it to be a remnant of an obsolete sense-organ.

To Professor Owen it is neither of these, but is the residuum of the deutostome, or invertebrate mouth, opening on the neural aspect of the animal and superseded in the vertebrates by a "tristostome" or hæmal mouth. In proof of this view he shows that in the lower mammals the pineal and pituitary bodies and their connections are larger and have a less parenchymatous and more tubular structure than in man; that in reptiles the pineal production perforates, as a rule, the parietal bone, but in some cases the suture between parietal and frontal; and that in fishes the relative magnitude and tubular character of this transcerebral tract are still more marked. In the skate the extension of the pineal part reaches beyond the cartilaginous roof of the brain-case, and in all Elasmobranchs it is an elongate tube, dilated at its peripheral end and maintaining its communication with the third ventricle, from the floor of which the infundibulum extends to join the pituitary body. In the brain of the Chimæra the cerebral masses are separated from the optic lobes by cord-like lamellæ equal in length to the structures they separate. These cord-like lamellæ seem to represent the crura cerebri, and the space between them, which is traversed by the pineal body and its connections, is the third ventricle. This structure seems to indicate that the crura cerebri are homologous with the parial cords which girt the gullet and connect the fore brain with the hinder masses in invertebrates. In the embryos of all vertebrates the pineal extension seems in quest of an open or oral outlet, but is checked by the external skin in lower forms, and by the cranial roof of the brain in the higher ones.

If it be admitted, with the great authority who, following in the line of Geoffrey St. Hilaire, advocates the "Unity of Organization" of the vertebrate and invertebrate kingdoms, that just as the umbilicus is the remnant of the protostome or primordial mouth, so the pineal body and its connections are the remnant in

¹ Aspects of the Body in Vertebrates and Invertebrates. By Richard Owen. London, 1883.